

Abstract

Many TCP congestion control algorithms (CCAs) that were originally built for wired networks are still used to dictate packet transmission for flows that operate over wireless, lossy LTE channels today. These algorithms perform poorly in these channels, over reacting to loss that occurs from factors other than packet loss. This study performs a comparison of a variety of TCP algorithms in order to find one that avoids these shortcomings and utilises available LTE bandwidth. Studies such as [29] fail to realistically model the environment in which real LTE flows operate over. These studies evaluate TCP performance over LTE assuming user equipment is stationary, handover is not occurring etc. This study will attempt to emulate a real world LTE scenario that takes these factors into account. The results show that most TCP CCAs are incapable of fully utilising available LTE resources. The exception to this is TCP BIC which aggressively recovers from loss events to achieve high goodput. An honorable mention is given to TCP BBR which demonstrates the most potential of the TCP variants up for comparison.